

State of Iowa - Return on Investment Program / IT Project Evaluation

SECTION I: PROPOSAL

Tracking Number (For Project Office Use)

Project Name: [Data Warehousing](#) Date: [7/14/2000](#)

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Executive Sponsor (Agency Director or Designee) Signature: [Steve Mosen, Div. Admin.](#)

Is this project necessary for compliance with a Federal standard, initiative, or statute? (If "Yes," cite specific requirement, attach copy of requirement, and explain in Proposal Summary) ☐ Yes ☒ No

Is this project required by State statute? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

Does this project meet a health, safety or security requirement? (If "Yes," explain in Proposal Summary) ☒ Yes ☐ No

Is this project necessary for compliance with an enterprise technology standard? (If "Yes," explain in Proposal Summary) ☐ Yes ☒ No

Does this project contribute to meeting a strategic goal of government? (If "Yes," explain in Proposal Summary) ☒ Yes ☐ No

Is this a "research and development" project? (If "Yes," explain in Proposal Summary) ☒ Yes ☐ No

PROPOSAL SUMMARY:

In written detail, explain why the project is being undertaken and the results that are expected. This includes, but is not limited to, the following:

1. A pre-project (before implementation) and a post-project (after implementation) description of the system or process that will be impacted.

Pre-project:

In a pre-project assessment of the DHS services that could be affected by the incorporation of a data warehouse, the following examples describe some of the business issues that a warehouse could impact:

TANF:

Eligibility workers must now access multiple systems to verify items such as client's income and assets. The process is difficult because it involves performing a number of individual transactions with several systems (i.e., Iowa Automated Benefits Calculation (IABC), Medical, Facility/Waiver Systems), as well as a knowledge of multiple query techniques. Also, it is

currently difficult to check for fraud and abuse and to verify applicant eligibility. In order to do this, information needs to be consolidated from several legacy systems.

There is a need for a single point of query access to legacy data across multiple systems. Currently, legacy systems do not have related data and each system updates differently. This poses a problem when trying to consolidate applicant information across various systems and increases the likelihood of errors.

Child Welfare:

Caseworkers need to be able to check service providers for child abuse, neglect or criminal convictions. Present policy calls for a review only upon initial application and sometimes (though not always) at renewal. Instead, the process should include a re-verification of provider status. Information to do this is presently stored on the Family and Children Services (FACS), State Tracking and Reporting (STAR), and Iowa Court Information Systems (ICIS).

Child Welfare needs the ability to profile client characteristics with provider data, geographic location, service cost, and child/family relationships, as well as to review the client's involvement and outcome with other DHS services (Mental Health, Child Support). The information, presently distributed across the FACS, STAR, IABC, Child Support Recovery Unit (CSRU), and Purchase of Systems (POS) systems, could be helpful in identifying "hazard rates" for flagging potential critical cases.

Child Support:

A need exists to be able to relate program and worker performance to goals and client results, as well as the ability to analyze the effect of policies and strategies on results over time. This would require tracking individuals and would need information stored on the Iowa Collections and Reporting (ICAR) and IABC systems.

The need exists for demographic client profiles in order to develop a plan for program improvement. Information needed to successfully make program projections is currently stored on the ICAR, IABC, Iowa Workforce Development (IWD), and Census Data systems.

Mental Health/Developmental Disabilities:

Sufficient detailed information to measure program performance is needed in order to identify "best practices." Also, there is a need to discern services that have the best outcome and are consistently effective from those which are not effective.

Case Management:

Caseworkers need to be able to identify services received, characteristics, hospitalization history, and living arrangements for each client. Systems, such as MMIS and Merit currently house the needed information. In addition, Case Management needs a common, central source of client information that is presently stored on the IABC, County Central Points of Coordination (CoCPC), and COMIS systems.

Post-project

The data warehouse will have a significant impact on decision support and service delivery in potentially all areas of the DHS. The following are the top critical issues, in order of priority, identified by staff from several service areas within the DHS:

1. **Single source of client profiles and demographics.** This would include easy access or single source of legacy data across multiple systems to client characteristics, demographics information, treatment histories, behavior and hazard/risk rates. This

information should be integrated across all program lines: information entered once would appear updated in all function areas.

2. **Program evaluation and performance measurements.** Provides analytical information to assess best practices, program outcomes, trend evaluation and effectiveness of program compared to desired results and best practice benchmarks.
 3. **Single source to identify services provided.** This data would transcend individual programs and indicate what programs and services have been or currently are being delivered to each client. This data would also include cost to deliver the service, location of services and relate access to services to desired results. Would prevent redundant services and benefits.
 4. **Provider evaluation analysis.** This data would allow analysis of providers relating to program and service delivery goals, client care and client outcomes.
 5. **Financial impact.** This data would encompass the financial impact to deliver services and analyze effect of increased or decreased delivery. Would analyze the cost of delivering multiple services to a client. Would track program sanctions and analyze program return on investment by client or groups of clients. Would support financial resources allocated to programs with measurable return on investment or with maximum client need.
 6. **Relate worker performance to program goals.** This data would analyze worker performance and caseload management against desired results. Would identify workers that needed coaching or additional training to be successful, thereby increasing positive program and treatment results.
 7. **Relate client outcomes to program goals.** Would provide the ability to do cross program analysis on clients to determine and measure the combined effort of services and treatment.
 8. **Longitudinal studies.** Providing and utilizing data from all areas of DHS and intergovernmental or private stakeholders would create optimal case planning and reviews of performance and treatment.
 9. **Common definition of business data terminology.** Identifying and defining a set of common terms and data elements would allow for easy sharing of data across program areas and business units.
 10. **Fraud and abuse analysis.** This data would allow various programs to detect, measure and correct fraud and abuse situations.
2. A summary of the extent to which the project provides tangible and intangible benefits to either Iowa citizens or to State government. Included would be such items as qualifying for additional matching funds, improving the quality of life, reducing the government hassle factor, providing enhanced services, improving work processes, complying with enterprise technology standards, meeting a strategic goal, avoiding the loss of matching funds, avoiding program penalties/sanctions or interest charges, avoiding risks to health/security/safety, complying with federal or state laws, etc.

Many potential benefits have already been identified as being achieved through the implementation of a data warehouse for DHS. Some of these benefits are listed below.

Staff Efficiency:

- Currently, child welfare administrative staff expends considerable effort using extracts to create analytical databases that are used for program evaluation and management oversight. The effort level of the staff performing these tasks will be reduced.
- Field staff will become more efficient in assessing the severity of cases with quicker, more complete access to historical records.

Utilization of Services

Creation of risk assessment profiles has significant potential for reduction in the average cost per encounter. In a modest estimate, the use of profiles may reduce foster care placements by 10%. On the other hand, risk assessment may be expected to generate a small number of instances where service staff is prompted to initiate more aggressive service intervention due to the profile and/or quick access to historical records. The return on investment here is not easily quantified, but may be as significant as the life of a child.

Program Control of Resources

Reduced dependence upon information systems staff for program outcome reporting will enable child welfare staff to achieve their administrative mission more efficiently. Gathering information necessary to initiate legal proceedings will be accomplished more efficiently and will be more accurate and reliable. Workers will no longer need to manually access multiple systems and collate the results into a comprehensive packet. This will result in more successful court cases, and the increased credibility will reduce instance of appeal.

Identification of Fraud & Abuse

With current tools and data structures, it is not feasible to identify overlapping services except in an anecdotal manner. By combining data from multiple service systems into a single warehouse, processes can be initiated to identify duplicate or overlapping service situations. In child welfare, this may not necessarily be fraud, but is more apt to be caused by miscommunication or lack of coordination between agencies.

Responsiveness

Quick access to information will increase the ability of program staff to evaluate policy changes and respond to legislative inquiries. In addition to the labor efficiencies, this capability will promote positive public perception of the program as being capable and responsive. Easy access to information on program performance improves the State's potential for accessing foundation and grant funding for innovative programming or evaluations.

Staff Morale

Empowering staff with the tools to do their job better will result in improved performance and a more positive perception of staff towards their job and the services they provide. This will reduce turnover, increase overall productivity, and improve outcomes.

Issues that have proven costly for the DHS that could be resolved by the implementation of a data warehouse include:

- Several programs, including Food Stamps, Family Investment Program (FIP) and Health Insurance Premium Program (HIPP), indicated that their work was hampered by the fact that required data is distributed between different systems, inconsistently formatted and not completely documented.
- Child Welfare caseworkers who are referring clients to service providers have no way to learn of incidents which could invalidate a provider, since such incidents are only noted during annual provider reviews. If caseworkers had access to criminal records information and to the Statewide Tracking and Reports (STAR) system, they could avoid making referrals to dangerous providers.

- Data is not currently collected on the outcomes of Child Welfare referrals to service providers. With this kind of information, caseworkers could more effectively select providers for referrals.
 - Several programs indicate the need to measure program effectiveness or to do cost/benefit analysis.
 - Better access to information from employers and the Clerk of the Court could facilitate collection of outstanding child support payments.
 - Difficult to check for fraud and abuse, a major goal is to be able to check fraud and to verify applicant eligibility.
3. A summary that identifies the project stakeholders and how they are impacted by the project.

There may be many situations in which subsets of information from the data warehouse could be made available to stakeholders of the Department. The availability of information would be simplified for those state agencies sharing the same physical platform (Teradata).

- The Iowa Legislature
- The client populations for the Department's various programs (e.g. Medicaid patients, Income Maintenance recipients, developmentally disabled residents, and many more)
- Potential clients (e.g. outreach to eligible non-participants)
- Other State agencies with related goals (e.g. CJJP, Iowa Workforce Development)
- The U.S. Department of Health and Human Services (e.g. for TANF grants and Medicaid)
- Cooperating agencies of other states (e.g. for execution of out-of-state child support judgements)
- County health departments
- Service providers (e.g. doctors, foster care providers, community mental health organizations, and many more)
- Third-party insurers
- DHS employees
- Judicial Court Systems

SECTION II: PROJECT PLAN

Individual project plans will vary depending upon the size and complexity of the project. A project plan includes the following information:

1. Agency Information

Project Executive Sponsor Responsibilities: Identify, in Section I, the executive who is the sponsor of the project. The sponsor must have the authority to ensure that adequate resources are available for the entire project, that there is commitment and support for the project, and that the organization will achieve successful project implementation.

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Organization Skills: Identify the skills that are necessary for successful project implementation. Identify which of these skills are available within the agency and the source(s) and acquisition plan for the skills that are lacking.

For DHS, a team dedicated 100% to data warehousing will need to be formed. This team must include both state staff and consulting staff. Initially, the skills needed to develop a warehouse will come from consulting staff. As part of the team, state staff must be able to work closely with the consultants to facilitate the transfer of knowledge as each phase is implemented. Although consulting staff will have the skills up front, state staff will have the business knowledge to manage the overall project.

Listed below are the roles and responsibilities recommended for building and maintaining a data warehouse for the DHS.

The main emphasis is not necessarily on the roles, but on the responsibilities involved in an overall data warehouse project. Some of the responsibilities may need to be assigned to more than one staff person. Also, the corresponding responsibilities for each skill indicated may not necessarily be a complete list. Responsibilities may vary as the warehouse project continues to move forward.

Project Manager (State Staff)

Any person who is directly responsible for the daily conduct of a project and for resolving issues.

Responsibilities:

- Defines and plans the project
- Has overall responsibility for the data warehouse
- Provides estimates of costs, benefits, schedules
- Obtains necessary deliverable approvals
- Produces/ensures production of deliverables
- Ensures appropriate staffing
- Coordinates activities of project participants
- Reports project status to User and I.T. management
- Ensures standards are adhered to
- Provides first level resolution of issues
- Controls project plan
- Manages and controls changes to scope
- Manages and controls changes to deliverables
- Acts as a quality reviewer throughout the project
- Must be dedicated 100% to the project
- Makes recommendations on ways to improve the data warehouse

End User (DHS Staff)

A person or organization who uses an application by entering, updating or retrieving data.

Responsibilities:

- Identifies data requirements
- Provides data definitions
- Owns the data
- Responsible for determining security
- Determines the form of data (summary, history, etc)
- Validates the quality of data
- Validates the accuracy of reports & queries
- Identifies transformation rules for data acquisition from legacy to the data warehouse
- Evaluates front-end tools

User Liaison (DHS Staff)

A person who is designated by a program and/or service area to represent that area in development and support activities. This person must know the user community and be familiar with how they use the data. The Liaison must also have the authority to make on-the-spot decisions on business rules.

Responsibilities:

- Gathers requirements from end users
- Helps with project planning, determining deliverables and establishes time frames
- Identifies data inconsistencies and processes to resolve the inconsistencies
- Provides definition of data
- Resolves issues between users
- Escalates business issues to business management
- Identifies priorities for implementation
- Communicates new requirements to I.T.
- Performs acceptance testing

Data Administrator & Data Analyst (Contract/DHS Staff)

A person who is responsible for the creation, maintenance, integration, and support of logical models, data definitions, and the central metadata repository.

Responsibilities:

- Helps in capturing metadata into the repository
- Coordinates project models with enterprise model
- Keeps models current
- Reviews data warehouse design specs
- Conducts modeling sessions
- Ensures quality and integrity of data
- Writes and enforces standards
- Administers metadata repository
- Provides internal support of modeling tools
- Builds business rules into migration tools
- Maps operational data to data models

Data Base Administrator (ITD Staff)

A person responsible for the design, performance, and support of physical data bases.

Responsibilities:

- Participates in migrating data from legacy systems
- Monitors database performance

- Monitors data warehouse usage
- Provides backup and recovery procedures
- Implements database security
- Deploys distributed data warehouse databases
- Manages DBMS vendor
- Identifies DBMS software problems
- Promotes data warehouse usability & productivity

Data Warehouse Architect (Contract Staff)

A person responsible for the design and quality of a data warehouse and the associated processes.

Responsibilities:

- Plans for integration of additional legacy systems
- Plans for integration of external data sources
- Monitors data warehouse use, trends, etc.
- Recommends ways to improve the data warehouse
- Participates in developing standards
- Resolves issues concerning physical design
- Tests data quality

System Analysts and Developers (DHS I.T. Staff/Contract Staff)

Person responsible for the definition and analysis of user requirements, the design of application processes, and the coding of programs.

Responsibilities:

- Analyze requirements
- Assesses current system data
- Helps determine the meaning of each data source
- Helps select appropriate data source fields
- Develops data acquisition program specifications
- Codes and unit tests data acquisition programs
- Writes the more complex queries that are beyond the capabilities of end users and user support
- Writes the extract and transformation programs
- Updates the metadata in the repository

Technical Support (ITD/DHS Staff)

People responsible for configuration and capacity planning, performance monitoring, support for hardware, system software, and network.

Responsibilities:

- Helps establish the technical architecture
- Provides support for hardware & software platforms
- Provides support with tools
- Investigates new technologies
- Integrates data warehouse software
- Develops capacity plans for hardware
- Monitors system software
- Develops contingency plans
- Monitors adherence to service level agreements
- Recommends approaches to network connectivity
- Manages installation and maintenance of hardware and software

Maintenance and User Support/Help Desk (ITD/DHS Staff)

Staff who, in the future, must fix, enhance, perform impact analysis, and answer questions about data warehouse components.

Responsibilities:

- Maintains data warehouse application in production
- Performs impact analysis for changes
- Manages and administers user query libraries
- Monitors performance of user queries
- Determines training requirements
- Provides help desk support
- Creates canned queries
- Coordinates installation of tools

For SFY 2001, an RFP is currently being drafted in an effort to solicit bids for the next phase of the DHS Data Warehouse. Because the RFP encompasses all phases of the project, professional consulting staff such as those indicated above will be requested as part of the overall RFP.

2. Project Information

Mission, Goals, Objectives: The project plan should clearly demonstrate that the project has developed from an idea to a detailed plan of action. The project plan must link the project to an agency's mission, goals, and objectives and define project objectives and how they will be reached. The project plan should include the following:

The need to have instantaneous access to data, with the ability to provide immediate answers to those many business questions, in a customized format that makes the user's job more efficient is what will make data warehousing one of the most highly demanded source of information within state government. In DHS (Department of Human Services) alone, there are numerous application systems users that could perform their jobs more efficiently and effectively if they had the capability to access data immediately from their own desktops, without having to wait for DDM (Division of Data Management) to run and deliver the report(s). In many cases, these reports may not have all the necessary data or may not be sorted in an order that is workable for the user. Data Warehousing provides these users with a tool to better make the many business decisions that are made everyday.

The initial data warehouse framework was developed. This included hardware in the form of a Teradata System, which resides with and is managed by ITD (Information Technology Department). DHS has been working closely with the Information Technology Department (ITD) during the planning phases of the project. ITD has also been working with other departments to coordinate the development of a statewide data warehouse that would bring together data from DHS and other agencies' operational systems into one centrally managed data warehouse. ITD's main responsibility is to manage the server(s) that the warehouse databases reside on, which is similar to what they provide with the mainframe system. The statewide approach gives staff from all levels of government the ability to analyze data from not only across their own department, but also eventually across multiple departments. Departments that have the need to share data and are unable to do so or departments that currently do share data via tape or batch processing would have immediate access to information right from their desktop computers. Additionally, a software application was developed/installed to interact with our systems. Data from the Child Welfare area was cleansed and loaded into the warehouse.

The Data Warehousing initiative is one element in the overall solution to make state government more accessible and accountable to its citizenry. DHS, through the Director's Action Plan, has set forth to develop a system that measures results not merely processes and the results being that individuals and/or families are: Safe, Healthy, Self-sufficient and have a Stable environment. Today technology can provide a mechanism to assist in meeting these goals. Data warehousing is our initiative from a technological perspective to actively partner in the process of meeting these goals.

- A. **Expectations:** A description of the purpose or reason that the effort is being undertaken and the results that are anticipated.

This data warehouse platform brings together the key data items from our operational systems into one centrally managed database. As key data is loaded into the warehouse, that data will not overlay existing data but will be appended to the warehouse on a periodic (weekly or monthly) basis. Once the data is loaded into the warehouse, over a period of time, there will become a large amount of historical, non-volatile information. Non-volatile in this case means that the data in the warehouse doesn't change, but remains consistent over time.

This does not mean our current operational systems will cease to exist. The current operational systems will continue to manage the day-to-day transactions, while the data warehouse pulls the key information together from those operational systems. As more and more operational systems data is extract and loaded into the warehouse, the return on investment will be recognized with the ability to perform trend and statistical analysis, forecasting, "what if" simulations, analysis of outcomes of programs and services, and development of best-practice models. Most importantly, the benefits will be realized with the improvements that the warehouse will provide DHS staff. As a result, the warehouse will be an additional tool that will assist in providing the best possible programs and services to our clients with the best possible results.

The mission for the DHS Data Warehouse is to improve access to information so that we can make better decisions and measure the effectiveness of our programs to meet the clients' needs. It is a requirement that the warehouse enable DHS to better understand who our clients are, what services we are providing the client, if we are providing the right services, and what are the outcomes of those services. Some of the results that will be achieved with this funding:

- Monitor and measure outcomes and activities across clients, programs, and services within DHS over time.
- Provide expanded and direct access to data. (E.g., access to Dept. of Public Health immunization records while the child is in foster care, childcare, etc.)
- Provide a means to proactively identify issues and trends. (e.g., ability to track service history by program or recidivism rate by client)
- Assist DHS staff in making better, more informed decisions.
- Improve data quality, consistency, and integrity.
- Reduce the amount of time required to obtain answers to simple and complex business questions.
- Increase availability and accessibility of client data across all programs and services.
- Provide a set of common business definitions by which to communicate.

- B. **Measures:** A description of the set of beliefs, tradeoffs and philosophies that govern the results of the project and their attainment. How is the project to be judged or valued? What criteria will be used to determine if the project is successful? What happens if the project fails?

- There exists a need for a *single source of client profiles and demographics*. As information grows, there is a challenge to maintain a "single source of truth". The data warehouse can meet this need.
- *Programs must be evaluated and performance must be measured*. There is a need for an analytical tool to access the value of the programs and the services provided.
- *The State would benefit with a single source to identify services provided to a client*. This opportunity would let the State determine what programs and services the client is receiving. This feature would help prevent redundant services and benefits.
- Without data warehouse functionality, Provider Evaluation analysis is difficult.

- Resources may be lost. The data warehouse can provide the basis for an analysis of the financial impact to deliver services. In addition, fraud and abuse can be tracked through the detail information in the data warehouse.
- Worker performance can be analyzed. Those in need of additional training or coaching can be identified.
- The success of programs can be measured in terms of client outcomes.
- Other lost opportunities include the standards of the department including common definition of business data terminology and the ability to perform longitudinal studies.
- Without the data warehouse it will be difficult to determine the financial impact of service delivery. Detailed information is required to do analysis such as financial impact to deliver services and analyze effect of increased or decreased delivery or analysis of the cost of delivering multiple services to a client.
- Without the data warehouse, it will be increasingly difficult to do ad-hoc analysis, querying and reporting in an acceptable time frame as workloads expand and data volumes increase.
- Without the data warehouse it is difficult to perform analysis that requires access to detail historical information, i.e. treatment history, financial analysis over time.
- Without the data warehouse the DHS employees will be limited in their ability to ask questions of the data, think about it, ask the question a different way and ask it right now. The data warehouse can unlock the creativity of the DHS users.

C. **Environment:** Who will provide input (e.g., businesses, other agencies, citizens) into the development of the solution? Are others creating similar or related projects? Are there cooperation opportunities?

The purpose of the data warehouse from the business user perspective is to provide them with a tool that will answer many of the key business questions that can't be answered today. In order to accomplish this task, users who utilize data for analysis and decision support will be the primary input providers during each phase of the project development from analysis to design to testing and implementation.

A user in this case would be anyone who has a strong knowledge of the business. They must have a thorough understanding of the business rules and the type of data that is collected. In addition, they must also be able to represent others within their business area. A business area can be either internal or external to the DHS. Internally, Policy Analysts, Business Analysts, Research and Development staff, and Management Analysts, to name a few, are assigned to the various programs and service areas across the DHS.

In order for the project to be successful, users must be involved in all phases of the project. Information Technology staff cannot drive this project. The user is the one who determines the data they need within the warehouse, not I.T. A successful data warehouse can only be developed with the knowledge of the kinds of queries and analysis the user will make against the warehouse.

The user must be aware of the benefits of the project. They must also be continually educated by the use of e-mails, newsletters, user groups, and/or web sites in regard to the new capabilities and tools available.

The end user should have the most involvement in the entire process of developing a data warehouse. Many of the business requirements for a data warehouse should stem from what the user requests.

Other agencies/stakeholders, such as, Workforce Development and Criminal Juvenile Justice Planning, have a need to exchange data with the DHS. Input from them and other external

stakeholders will be required as we work together toward the sharing of data via an enterprise-wide data warehouse solution.

- D. **Project Management and Risk Mitigation**: A description of how you plan to manage the project budget, project scope, vendors, contracts and business process change (if applicable). Describe how you plan to mitigate project risk.

Part of the responsibility of managing a project must be to obtain an awareness of the potential risk that could occur prior to the onset of the project. Some of the potential risks that have been identified include the following:

- **Availability of Information:** Setbacks could occur due to the inability to obtain needed data sources, statistics, schemas and other technical and non-technical information. This could occur due to a lack of information tracking or of personnel possessing required data (because of limited knowledge ownership within the organization and/or difficulty contacting needed individuals).
- **Data Concerns:** Data concerns involve the extraction, cleansing and loading of the data. Staff may be required to create programs to do these functions. Cleansing of the data may also be a concern. Data must be correctly defined (i.e. numeric fields must contain numbers) and the content must be appropriate.
- **Changing Business Requirements:** Any modifications or additions to the existing warehouse needs, as defined by DHS, could delay the completion of the project.
- **Lack of Executive Sponsorship:** As with any project of this scope, it is essential to have the full support of a high level executive.
- **Training Issues:** Training must not only be comprehensive and complete, it must occur within a timeframe that coincides with the warehouse installation. Users must be able to access their own warehouse immediately to reinforce the training, provide feedback and ensure success.
- **Data Standards:** The department, like most other installations, lacks data standards. For example, the term “household” can have different meanings to different groups. Field content can also differ. Gender field for another example, can have an “F” or “M” or perhaps a “1” or “2”. These different views of data can cause risks.

In order to avoid such risk, the following guidelines will be adopted as part of the warehouse project plan:

- Availability of staff, both MIS and users for participation in design
- Full management support
- Dedicated programming staff
- Proper equipment and training, i.e. personal computers, software
- Realistic expectations – maintain scope of the project by having weekly status meetings and identifying and signing off on all phases of development and implementation
- Open lines of communication from user in all phases of the project

- E. **Security / Data Integrity / Data Accuracy / Information Privacy**: A description of the security requirements of the project? How will these requirements be integrated into the project and tested. What measures will be taken to insure data integrity, data accuracy and information privacy?

Due to the sensitive nature of much of its data, security and confidentiality are very important considerations for the DHS data warehouse. The Teradata provides security scheme with which the database administrator can specify the organization’s security policy (“who can access what data in what ways”). Once this is defined it is enforced automatically by the system each time data is accessed. For example:

- To access the data warehouse at all, a user (or group of users) must have a pre-defined account with a userid and password, set up by the DBA.
- The DBA grants permissions to users to access individual data tables or groups of tables. Permissions specify the table, the userid, and the ways in which the table may be accessed. For example, one user may be able to update a certain table while another can only read it and a third cannot access it at all.
- The system can even control access to portions of tables through the “view” mechanism. A view can be thought of as a “mask” placed over a table to cover up some of the rows or columns. For example, a certain user may need access to the name and address columns of a payroll table, but should not have access to the salary information. A view would be created showing only name and address, and she would be given access to the view but not to the underlying table. In another example, a user might be restricted to see only the rows of a table related to his own department.
- Each time the Teradata receives a query, it:
 - determines the userid of the submitter
 - determines what tables are referenced by the query and in what ways
 - verifies that the userid has the required permissions
 - aborts the query if the correct permissions are not in place
- Because the security policy is enforced by the RDBC, it does not depend on the choice of client software. Thus, it cannot be circumvented by using a different piece of client software or a user-written program.

Because high sensitivity of much of the data within the DHS, several program and service area staff have requested that encryption be utilized as a means of data security.

3. Current Technology Environment (Describe the following):

A. Software (Client Side / Server Side / Midrange / Mainframe)

Please refer to the DHS Overall System Flow diagram below.

- Application software
- Operating system software
- Interfaces to other systems: Identify important or major interfaces to internal and external systems

Currently, the data contained in the DHS Data Warehouse is stored on the Teradata 2.3 database administered by the Information Technology Department. The operating system software utilized is UNIX.

During SFY2001, the DHS plans to focus on interfacing data via the data warehouse from the internal systems like FACS and STAR. Eventually, there will be a need to interface with other agencies like the Criminal Juvenile Justice Planning (CJJJ) data warehouse for charge and sentencing information.

As other data warehousing projects come online within the Teradata environment, the DHS and other departments must work together to form data sharing partnerships.

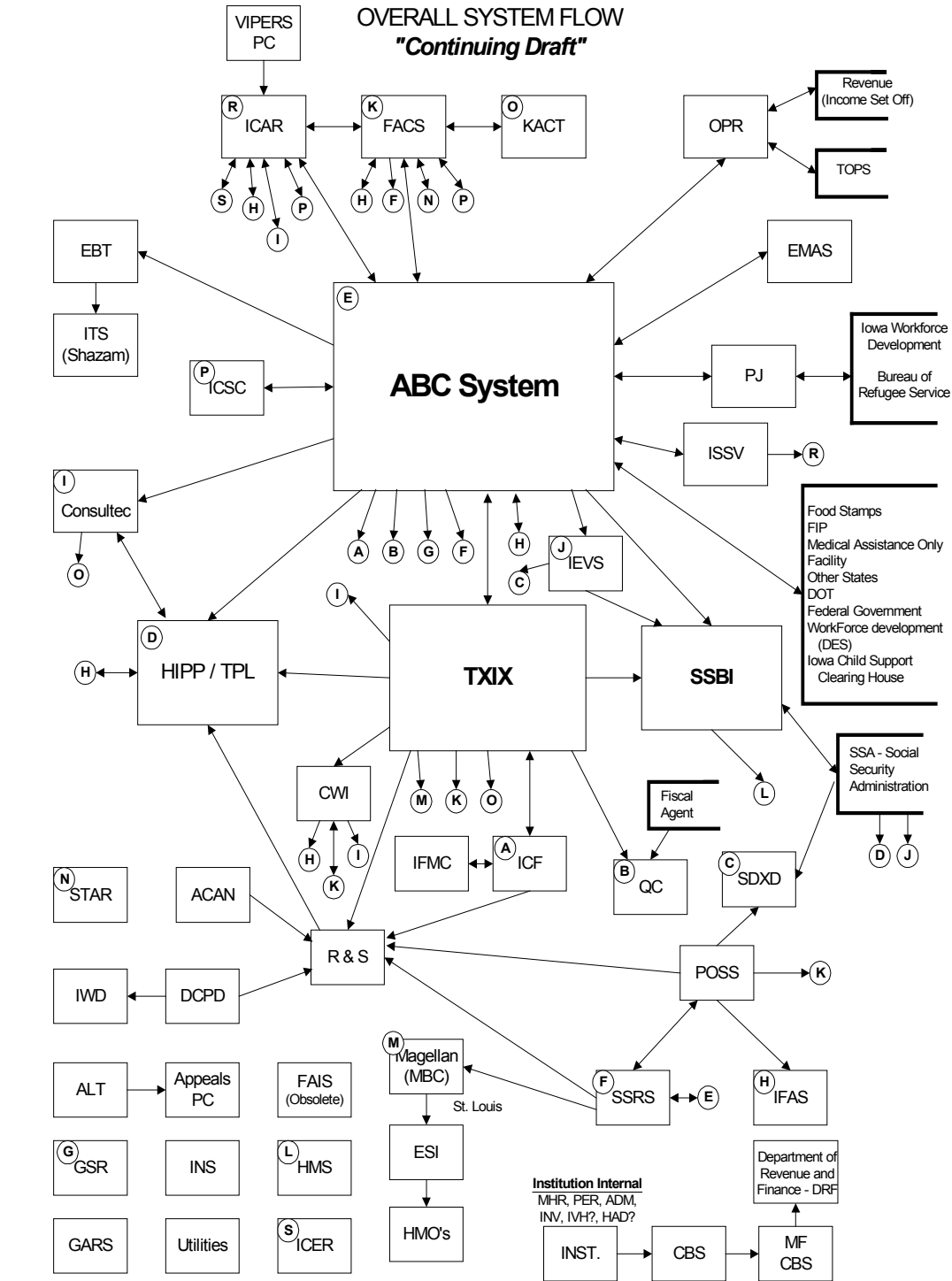
B. Hardware (Client Side / Server Side / Mid-range / Mainframe):

Please refer to the Technical Infrastructure Survey that specifies the DHS network, desktop, and systems information. Also included is a diagram of the DHS Hoover Operations diagram.

- Platform, operating system, storage and physical environmental requirements

- **Connectivity and Bandwidth:** If applicable, describe logical and physical connectivity.
- **Interfaces to other systems:** Identify important or major interfaces to internal and external systems.

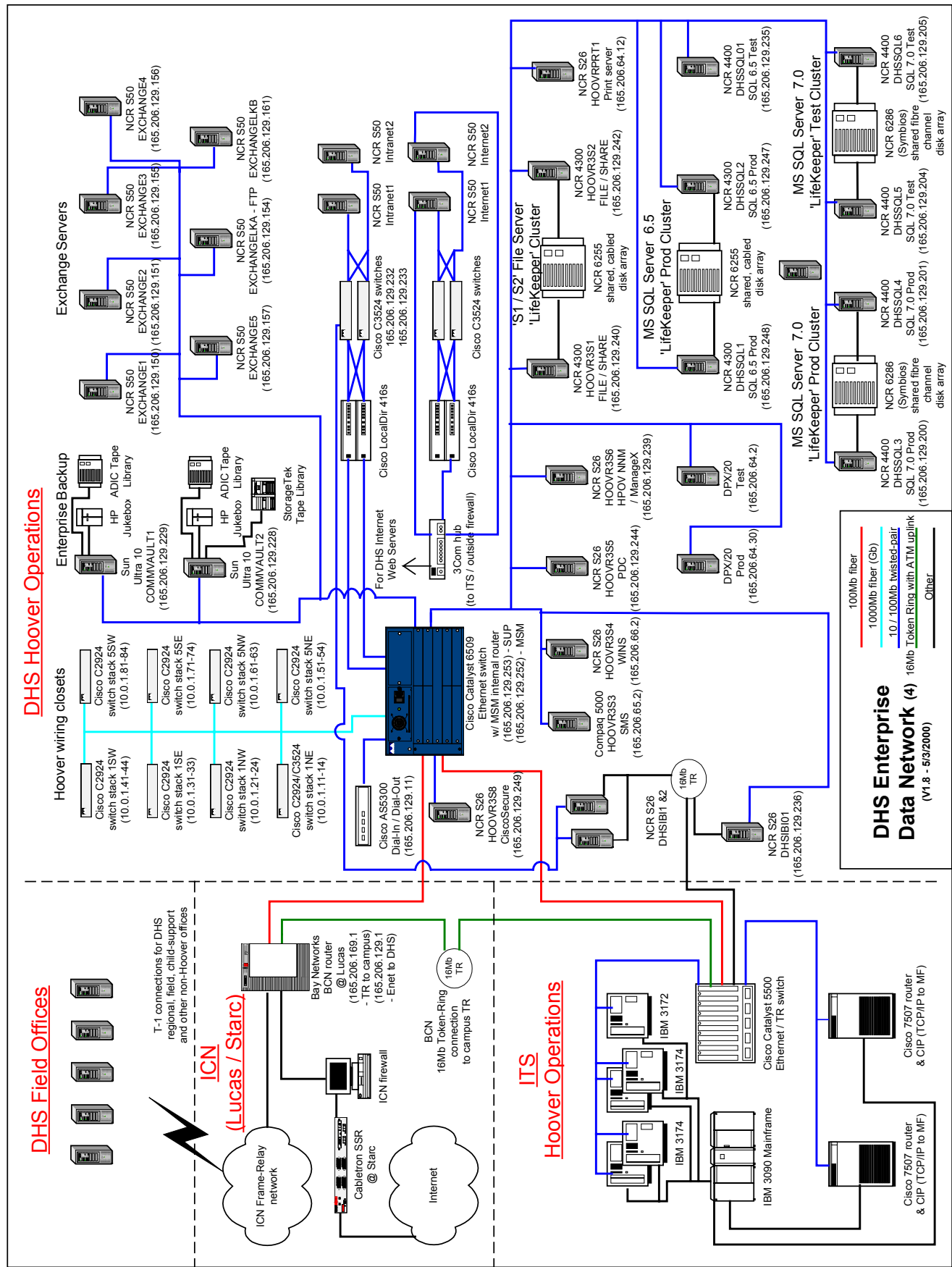
DHS SYSTEMS OVERALL SYSTEM FLOW "Continuing Draft"



Max Yaro

Revised 7/1/99

IT Project Evaluation



TECHNICAL INFRASTRUCTURE SURVEY

ICN Network Information:

1. What network protocols are used?	<input type="checkbox"/> DECNET <input type="checkbox"/> X.400 <input type="checkbox"/> IPX/SPX (Novell) <input type="checkbox"/> RMON <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> TCP/IP <input type="checkbox"/> X.500 <input type="checkbox"/> SNMP <input checked="" type="checkbox"/> Frame Relay	<input type="checkbox"/> NetBios <input type="checkbox"/> SNA (IBM) <input type="checkbox"/> X.25
2. What type of network topologies does the LAN employ?	<input checked="" type="checkbox"/> Ethernet <input checked="" type="checkbox"/> 10BaseT <input type="checkbox"/> SONET <input checked="" type="checkbox"/> Fibre Channel <input type="checkbox"/> Other _____		
3. What type and number of network servers are installed?	<input type="checkbox"/> Compaq _____ <input type="checkbox"/> HP _____ <input type="checkbox"/> DEC _____ <input type="checkbox"/> Other _____		
4. What network operating systems are installed?	<input type="checkbox"/> Novell <input type="checkbox"/> NFS (Sun) <input type="checkbox"/> LAN Server / Warp Server (IBM) <input type="checkbox"/> Other _____		
5. What network applications are installed?	<input type="checkbox"/> Computer Telephony <input checked="" type="checkbox"/> Help Desk <input checked="" type="checkbox"/> Document Management <input checked="" type="checkbox"/> Email <input type="checkbox"/> Directory Services <input type="checkbox"/> Electronic Commerce <input checked="" type="checkbox"/> Other __SNA, SQL_____		
6. What type(s) of service does the network provide?	<input checked="" type="checkbox"/> Internet <input type="checkbox"/> Other _____		
7. What is the speed of the network connection to the ICN?	<input checked="" type="checkbox"/> T-1 (1.544 Mbps) line <input type="checkbox"/> Other (bps) _____		
8. What is the type of connection to the ICN?	<input checked="" type="checkbox"/> Frame Relay <input type="checkbox"/> Other _____		
9. What is the type of termination for circuits?	<input type="checkbox"/> RJ-45/T1 Jack <input type="checkbox"/> Punch Down Block/56K & T1 <input checked="" type="checkbox"/> Other Punch down block/RJ-45_____		

10. What modes of network security are implemented?	<input checked="" type="checkbox"/> Firewalls / proxy servers <input checked="" type="checkbox"/> Authentication <input type="checkbox"/> File encryption <input type="checkbox"/> Security auditing <input type="checkbox"/> Other <input type="checkbox"/> Traffic encryption <input checked="" type="checkbox"/> Password protection <input checked="" type="checkbox"/> Virus Protection
11. What is the total number of application servers installed on this network?	30
12. What are the types and numbers of server operating systems in use at this site?	<input type="checkbox"/> HP/UX _____ 34 <input type="checkbox"/> MVS _____ <input type="checkbox"/> OS/400 _____ <input type="checkbox"/> Tandem _____ <input type="checkbox"/> SCO UNIX _____ <input checked="" type="checkbox"/> AIX (IBM) _2_ <input type="checkbox"/> Other UNIX _____ <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Windows NT <input type="checkbox"/> VM <input type="checkbox"/> VAX/VMS <input type="checkbox"/> Unisys <input type="checkbox"/> Sun OS / Solaris
13. What databases are installed?	<input checked="" type="checkbox"/> SQL Server <input type="checkbox"/> Informix <input type="checkbox"/> Progress <input type="checkbox"/> FoxBase <input type="checkbox"/> Other <input type="checkbox"/> Sybase <input type="checkbox"/> DB/2 <input type="checkbox"/> SQL Base <input type="checkbox"/> XDB <input type="checkbox"/> Ingress <input type="checkbox"/> SQL Server <input type="checkbox"/> dBase <input type="checkbox"/> Oracle
14. How many desktop systems are connected to the LAN?	6000
15. What are the types and approximate numbers of desktop operating systems being used?	<input checked="" type="checkbox"/> Windows NT _12_ 5988 <input type="checkbox"/> Windows 3.11 _____ <input type="checkbox"/> OS/2 _____ <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Windows 95 <input type="checkbox"/> DOS <input type="checkbox"/> Mac OS
16. What types of peripherals are attached to the network?	<input checked="" type="checkbox"/> Network printers <input type="checkbox"/> External Magnetic-disk storage <input checked="" type="checkbox"/> Network Scanners <input checked="" type="checkbox"/> RAID <input type="checkbox"/> Other <input type="checkbox"/> External optical-disk h/w <input checked="" type="checkbox"/> External tape h/w
17. Attach ICN frame relay statistics for user-to-network interfaces.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available
18. Attach ICN frame relay statistics for network-to-network Interfaces.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available

19. Attach ICN frame relay statistics for switch-to-switch trunks.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available
20. Attach monthly / daily graphical plots of usage data for line to ICN.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Available

Source System Information:**Name of the Platform: MS SQL**

1. What is the make and model of the hardware platform?	NCR 4300 / NCR 4400
2. What is the operating system / version running on this machine?	NT 4.0 SP 5/6
3. What are the type, speed, and number of processors used by this machine?	Quad 200 pentium 4X550 pentium III
4. What is the total RAM available on this machine?	1 possible 2 gigs
5. What is the total disk space resident on this machine? How much of it is currently used?	172 gig/server 160 gig/enterprise
6. What are the type, size, and number of disks attached to this machine?	16-18 gig Seagates
7. Is the machine connected to the ICN?	Yes
8. Is the machine within a State or Department firewall?	State firewall
9. Is the machine connected to the Internet?	Yes
10. Is remote access via dial-up modem available to this machine?	Yes
11. What database(s) are running on this machine? (Include version)	MS SQL 6.5 sp 5A MS SQL 7.0 sp 2
12. What is the size of each database (total space allocated) running on this machine?	160 gigs

13. What business applications are running on this machine? Identify the application name, acronym, and business purpose for each application (E.g., Medicaid Management Information System, MMIS, used to manage the State's Medicaid program)	MS SQL is the only application running on this machine. There are 104 different database used in this MS SQL application.
14. What departmental agencies does this machine support?	DHS
15. What is the maximum number of concurrent users that this system supports?	4,000
16. What percent of total system resources is employed when the machine is processing at peak user loads?	Not doing any tracking on this.
17. Where is this machine physically located?	Hoover Building

Desktop System Information:

Number of Desktops: 6000

1. What type(s) of user is this configuration designed? (E.g., manager / executive, program analysts, office support, technical / IT user, etc.)	ALL except the LAN Team
2. What is the make(s) and model(s) of this desktop configuration?	NEC, Gateways, AT&T, Toshiba
3. What is the type and speed, (and number, if greater than one) of the processor?	Pentium II 700
4. What is the typical size of the hard drive?	9 gig
5. What is the typical amount of RAM?	16 meg – 128 meg
6. What is the usual amount of secondary cache available with this configuration?	L1/L2
7. What operating system(s) and version(s) are used with this configuration?	Windows 95 All releases

8. What percent of the configuration includes a floppy drive, a CD drive, and both drives?	Floppy – all , CD – most
9. What percent of the configuration utilize other external types of drives (E.g., Zip, cartridge, etc)?	Should be none
10. What percent of this configuration includes a modem? What speed(s) are typical?	2% Approx – 28.8 to 56k
11. What applications are typically stored and used with this configuration? (E.g., MS Word, Excel, Access; SPSS, specific graphics packages, specialized applications, etc.)	MS Office, EPC!, Norton's
12. What percent of this configuration is connected to the ICN?	All
13. What protocol is used to connect to the network? (E.g., TCP/IP, Novell Netware, Microsoft Network Client, NetBeui, IPX/SPX, etc.)	TCP/IP
14. What percent of this configuration is used as stand-alone workstations, and what percent accesses other systems / peripherals via the network (e.g., mainframe or Unix systems, network printers, etc.)?	As far as I know there should be no stand alone PC's. All of the PC's on the network go to the mainframe. 2% go to a Unix system.
15. What percent of this configuration is connected to the internet?	all

4. Proposed Environment (Describe the following):

For SFY2001 there are no plans to change the hardware specific to the data warehouse currently within the DHS environment. Eventually, additional disk space on the Teradata will need to be requested as more source systems data is loaded onto the warehouse.

A. Software (Client Side / Server side / Mid-range / Mainframe)

- Application software
- Operating system software
- Interfaces to other systems: Identify important or major interfaces to internal and external systems
- General parameters if specific parameters are unknown or to be determined

B. Hardware (Client Side / Server Side / Mid-range / Mainframe)

- Platform, operating system, storage and physical environmental requirements
- Connectivity and Bandwidth: If applicable, describe logical and physical connectivity.
- Interfaces to other systems: Identify important or major interfaces to internal and external systems.
- General parameters if specific parameters are unknown or to be determined

Data Elements: If the project creates a new database the project plan should include the specific software involved and a general description of the data elements.

The source data for the warehouse comes from the Family and Children Services (FACS), and State Tracking and Reporting (STAR) systems. A majority of the information extracted consists of Child Abuse, Foster Care, and Adoption information.

COBOL programs will be used to extract and cleanse the key pieces of data from the FACS and STAR systems into various flat files stored on the mainframe. Once the data extraction and cleansing process has been completed, Teradata fastload and multiload utilities will be executed to load the tables on the data warehouse from the mainframe flat files.

Note: The software used to design the logical and physical data warehouse data models is Sybase PowerDesigner 7.

Attached is a Data Element Report that describes all the data elements that make up the DHS Data Warehouse.

Project Schedule: A schedule that includes: time lines, resources, tasks, checkpoints, deliverables and responsible parties.

Because the DHS is in the process of developing an RFP for the next phase of data warehouse development, a project schedule cannot be supplied as of yet. Once the DHS Project Manager knows the amount of funds available from the pooled technology account, the hiring of a vendor can then proceed. Both vendor and state staff will then decide the timeline for analysis, development, and implementation. ITD will then be notified of the project plans and schedule as approved by the DHS.

Tentative plans are to complete the Child Welfare portion of the data warehouse. This will include defining additional business needs and the corresponding data to resolve those business needs. This will include expanding on foster care, adoption, medical, and financial services data to be stored in the warehouse. In addition, the Income Maintenance data used to create the Temporary Assistance for Needy Families (TANF) report needs to be further identified and cleansed before loading to the warehouse. A great deal of time will be involved in the extraction, cleansing, loading, and testing of the TANF data prior to staff utilization.

SECTION III: Return On Investment (ROI) Financial Analysis

Project Budget:

Provide the estimated project cost by expense category.

Personnel.....	\$453,160
Software.....	\$50,000
Hardware	\$384,000
Training	\$35,000
Facilities	\$16,576
Professional Services.....	\$760,000
Supplies	\$84,000 (pc, workspace, phone, etc)
Other (Specify).....	\$
Total.....	\$1,782,736

The personnel cost of \$453,160 would include essentially nine new FTE positions. Eight of those positions would make up a team of data warehouse user liaisons that have a strong knowledge of the data and can assist in developing requested queries and reports for central office and field staff. This team would act as a technical help desk for any data warehouse data related questions for the DHS staff. The one other FTE position would have the responsibilities of a Data Analyst to assist the Project Manager during all phases of analysis, development, and implementation.

Estimated software cost of \$50,000 is approximately what it will cost to purchase additional licenses as more users need access to the data warehouse. As additional licenses are purchased, users will be required to attend training prior to using the software. Training is estimated at \$35,000.

Office space for the new positions has been estimated at \$16,575. This is based on estimated space of 1184 sq. ft. at \$14/sq. ft.

The estimated cost for Professional Services is based on a \$95 per hour rate for 2000 work hours

Project Manager (FT)	\$190,000
Technical Lead (FT)	\$190,000
Senior Systems Engineer	\$190,000
Data Modeler	\$ 95,000
Test/Systems Engineer (PT)	<u>\$ 95,000</u>
	\$760,000

The annual supply cost for the nine new positions plus five consultant positions is based on \$6,000 for each person which would include a PC, work surfaces, phone, etc. The total supply cost estimated for 14 positions is \$84,000.

Hardware cost includes the DHS current Teradata hardware expense of approximately \$32,000/mo billed by ITD.

Project Funding:

Provide the estimated project cost by funding source.

State Funds.....	\$1,030,778.....	57.82	% of total cost
Federal Funds.....	\$ 751,958.....	42.18	% of total cost
Local Gov. Funds.....	\$.....		% of total cost
Private Funds.....	\$.....		% of total cost
Other Funds (Specify).....	\$.....		% of total cost
Total Cost:	\$1,782,736.....	100	% of total cost

How much of the cost would be incurred by your agency
from normal operating budgets (staff, equipment, etc.)?\$0 0%

How much of the cost would be paid by "requested IT project funding"? ..\$1,030,778
57.82%

Provide the estimated project cost by fiscal year: FY2001 \$1,782,736

The estimated project costs for FY2001 are based on a small-scale approach to addressing some of the annual federally mandated reporting requirements in the Child Welfare and Income Maintenance service areas. In order for the DHS to get on-board with data warehousing, the small-scale approach allows the department to implement the initial phase of the project in a relatively short timeframe. The timeframe for FY2001 data warehouse development and implementation will begin once the funding is made known, the RFP process has been completed, and a vendor has been chosen. The anticipated starting date of the project will be approximately mid-October and will run through the end of FY2001.

For FY2002, the cost is estimated at approximately \$4.5 million. This includes an expanded project scope which involves more source systems data (medical, food stamps, financial, etc.), more consulting staff, additional FTE's, and the purchasing of additional hardware, software, and training. Of the \$4.5 million, approximately \$1.1 million will be used to cover the cost of permanent FTE's support, hardware, and other costs.

For FY2003, a similar estimated project cost of \$4.5 million also applies.

ROI Financial Worksheet Directions (Attach Written Detail as Requested):

Annual Pre-Project Cost -- Quantify, in written detail, all actual State government direct and indirect costs (personnel, support, equipment, etc.) associated with the activity, system or process prior to project implementation. This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

Annual Post-Project Cost -- Quantify, in written detail, all estimated State government direct and indirect costs associated with activity, system or process after project implementation. This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

State Government Benefit -- Subtract the total "Annual Post-Project Cost" from the total "Annual Pre-Project Cost." This section should be completed only if State government costs are expected to be reduced as a result of project implementation.

Citizen Benefit -- Quantify, in written detail, the estimated annual value of the project to Iowa citizens. This includes the "hard cost" value of avoiding expenses (hidden taxes) related to conducting business with State government. These expenses may be of a personal or business nature. They could be related to transportation, the time expended on or waiting for the manual processing of governmental paperwork such as licenses or applications, taking time off work, mailing, or other similar expenses.

Opportunity Value/Risk or Loss Avoidance Benefit -- Quantify, in written detail, the estimated annual benefit to Iowa citizens or to State government. This could include such items as qualifying for additional matching funds, avoiding the loss of matching funds, avoiding program penalties/sanctions or interest charges, avoiding risks to health/security/safety, avoiding the consequences of not complying with State or federal laws, providing enhanced services, avoiding the consequences of not complying with enterprise technology standards, etc.

One of the initial incentives of developing a data warehouse is to continuously store the required data for federally mandated reporting. One federal report in particular is called Temporary Assistance for Needy Families (TANF) report. This report is created annually and takes several months to extract the data from multiple source systems, cleanse the data, and create the reports to meet federal guidelines. Currently, three staff people are working to meet the new federal TANF reporting guidelines that have changed substantially since the past years reporting period.

In order to meet federal reporting requirements, the data needs to be merged together and stored in a warehouse where users can create queries and reports as needed. This would significantly reduce the time and resources used to generate many of the federally mandated reports.

With the recent major changes in federal reporting requirements for TANF and Adoption and Foster Care Analysis and Reporting System (AFCARS), the need to have the data readily available in the warehouse is becoming even more imperative. The penalty for TANF equals 5% of \$117 million for inaccurate or incomplete reports. In addition, \$100,000 is the penalty applied for AFCARS errors.

TANF Federal Block Grant	\$117,000,000
Percent penalized for inaccurate reporting	5%
Total TANF penalty	\$5,850,000
Penalty for AFCARS reporting	\$100,000
Total Penalty for Inaccurate TANF & AFCARS	\$5,950,000

In addition to the \$5,950,000, federal funding for this project of \$376,661 could be lost if state funding is not available. Please refer to the spreadsheet under the subheading *Total Annual Project Cost* below.

Total Penalty for Inaccurate TANF & AFCARS	\$5,950,000
Loss of Federal Funding (calculated using useful life)	\$376,661
Opportunity Value/Risk	\$6,326,661

A few examples of Other Opportunity Value by Service Area that a warehouse could provide include:

Child Welfare:

- Ability to compare similarities and differences between child welfare and other programs and identify which program is most successful.
- Eliminate the paying of \$13 per Department of Criminal Investigations (DCI) check for nursing home staff with a volume of 500 to 1,000 per month.
- Fewer, overturned reviews and appeals would free staff time for other work

Income Maintenance:

- Decrease in overpayment of claims by 50%
- Ability to know why service access is lacking/slow in specific geographical locations, as well as how this lack/slow access is affecting client
- Provide a single source of information to verify applicant eligibility data

Case Management:

- Ability to measure results of the services provided to the customer.
- Ability to track duplicate services down to prevent redundant services and benefits

Child Support:

- Provide an accessible, user-friendly, distributed analysis and reporting tool so workers, planners, evaluators, and managers can understand how they are contributing to program goals and enable them to make decisions based on information.
- Ability to relate customer behavior to demographics in order to improve the program.
- With the overall goal of self-sufficiency, warehousing will allow the ability to track individuals over time.

Mental Health – Institutions:

- Ability to obtain comprehensive, longitudinal information on client services to allow optimal system-wide planning and review.
- Obtain information to support appropriations request to assure that funding is distributed to areas most in need.
- Ability to find services which are not effective, as well as those particular services which are consistently effective.

Refer to SECTION 2: Project Plan (item #2. Project Information, D. Project Management and Risk Mitigation:)

Total Annual Project Benefit -- Add the values of all annual benefit categories.

With any successful data warehousing project, the benefits will continually increase as data becomes easier to share and store historically. For example, the State of Minnesota Dept. of Human Services recovered \$5 million of health care fraud over the past 24 months and just recently received a \$9.42 million federal welfare reform high performance bonus attributed to analysis and reporting done from the data warehouse. Minnesota also boasts their warehouse as giving them the ability to see the entire scope of the DHS health care business and to have a better, more data-based idea of how policy changes will affect those they serve.

As far as operational savings, Minnesota estimated savings of \$740,000 per year have been attributed to the data warehousing. This includes reduced operating costs for legacy subsystems

and ad hoc reporting of \$350,000, reduced programming cost of \$300,000, elimination of some production reports of \$60,000 and reduced staff costs for reports produced manually from existing reports of \$30,000.

Total Annual Project Cost -- Quantify, in written detail, the estimated annual new cost necessary to implement and maintain the project including consulting fees, equipment retirement, ongoing expenses (i.e. labor, etc.), other technology (hardware, software and development), and any other specifically identifiable project related expense. In general, to calculate the annual hardware cost, divide the hardware and associated costs by three (3), the useful life. In general, to calculate the annual software cost, divide the software and associated costs by four (4), the useful life. This may require assigning consulting fees to hardware cost or to software cost. A different useful life may be used if it can be documented.

Successful data warehouse projects typically do not have a set useful life span. Since data is brought into the warehouse from both internal and external systems on an ongoing basis, it makes determining the useful life difficult to predict. Ideally, the longer a data warehouse is being utilized and expanded, the more beneficial it becomes. Statistical and trend analysis, forecasting, "what if" simulations, analysis of outcomes of programs and services, and development of best-practice models becomes more precise as more historical data is incorporated into the warehouse.

The following spreadsheet illustrates the annual cost based on the useful life for each project expense category:

Expense Category	(A) Cost for FY2001	(B) Useful Life	Annual Cost (= A / B)
Personnel	\$453,160	1	\$453,160
Software	\$50,000	4	\$12,500
Hardware	\$384,000	3	\$128,000
Training	\$35,000	4	\$8,750
Facilities	\$16,576	1	\$16,576
Professional Services	\$760,000	4	\$190,000
Supplies	\$84,000	1	\$84,000
Total	1,782,736		\$892,986

The following spreadsheet illustrates the breakdown of the Total Annual Project Cost by funding source:

Funding Source	(A) Total Ann. Proj Cost	(B) % of Cost	Total Cost (= A * B)
State	\$892,986	57.82	\$516,325
Federal	\$892,986	42.18	\$376,661
Total			\$892,986

Benefit / Cost Ratio – Divide the "Total Annual Project Benefit" by the "Total Annual Project Cost." If the resulting figure is greater than one (1.00), then the annual project benefits exceed the annual project cost. If the resulting figure is less than one (1.00), then the annual project benefits are less than the annual project cost.

ROI -- Subtract the “Total Annual Project Cost” from the “Total Annual Project Benefit” and divide by the amount of the project funds requested.

Benefits Not Cost Related or Quantifiable -- List the project benefits and articulate, in written detail, why they (IT innovation, unique system application, utilization of new technology, hidden taxes, improving the quality of life, reducing the government hassle factor, meeting a strategic goal, etc.) are not cost related or quantifiable. Rate the importance of these benefits on a “1 – 10” basis, with “10” being of highest importance. Check the “Benefits Not Cost Related or Quantifiable” box in the applicable row.

Return on Investment is difficult to quantify before the system is utilized. The return can be of both a tangible or intangible nature and can occur when least expected. Many of the non-cost related or quantifiable benefits listed below can be found elsewhere in this document, but have been repeated for the purpose of rating.

Single source of client profiles and demographics. This would include easy access or single source of legacy data across multiple systems to client characteristics, demographics information, treatment histories, behavior and hazard/risk rates. This information should be integrated across all program lines: information entered once would appear updated in all function areas. **Rating: 10**

Program evaluation and performance measurements. Provides analytical information to assess best practices, program outcomes, trend evaluation and effectiveness of program compared to desired results and best practice benchmarks. **Rating: 10**

Single source to identify services provided. This data would transcend individual programs and indicate what programs and services have been or currently are being delivered to each client. This data would also include cost to deliver the service, location of services and relate access to services to desired results. Would prevent redundant services and benefits. **Rating: 10**

Provider evaluation analysis. This data would allow analysis of providers relating to program and service delivery goals, client care and client outcomes. **Rating: 10**

Financial impact. This data would encompass the financial impact to deliver services and analyze effect of increased or decreased delivery. Would analyze the cost of delivering multiple services to a client. Would track program sanctions and analyze program return on investment by client or groups of clients. Would support financial resources allocated to programs with measurable return on investment or with maximum client need. **Rating: 10**

Relate worker performance to program goals. This data would analyze worker performance and caseload management against desired results. Would identify workers that needed coaching or additional training to be successful, thereby increasing positive program and treatment results. **Rating: 10**

Relate client outcomes to program goals. Would provide the ability to do cross program analysis on clients to determine and measure the combined effort of services and treatment. **Rating: 10**

Longitudinal studies. Providing and utilizing data from all areas of DHS and intergovernmental or private stakeholders would create optimal case planning and reviews of performance and treatment. **Rating: 10**

Common definition of business data terminology. Identifying and defining a set of common terms and data elements would allow for easy sharing of data across program areas and business units. **Rating: 10**

Fraud and abuse analysis. This data would allow various programs to detect, measure and correct fraud and abuse situations. **Rating: 10**

Staff Efficiency: Rating: 10

- Currently, child welfare administrative staff expends considerable effort using extracts to create analytical databases that are used for program evaluation and management oversight. The effort level of the staff performing these tasks will be reduced.
- Field staff will become more efficient in assessing the severity of cases with quicker, more complete access to historical records.

Utilization of Services Rating: 10

Creation of risk assessment profiles has significant potential for reduction in the average cost per encounter. In a modest estimate, the use of profiles may reduce foster care placements by 10%. On the other hand, risk assessment may be expected to generate a small number of instances where service staff is prompted to initiate more aggressive service intervention due to the profile and/or quick access to historical records. The return on investment here is not easily quantified, but may be as significant as the life of a child.

Program Control of Resources Rating: 10

Reduced dependence upon information systems staff for program outcome reporting will enable child welfare staff to achieve their administrative mission more efficiently. Gathering information necessary to initiate legal proceedings will be accomplished more efficiently and will be more accurate and reliable. Workers will no longer need to manually access multiple systems and collate the results into a comprehensive packet. This will result in more successful court cases, and the increased credibility will reduce instance of appeal.

Responsiveness Rating: 10

Quick access to information will increase the ability of program staff to evaluate policy changes and respond to legislative inquiries. In addition to the labor efficiencies, this capability will promote positive public perception of the program as being capable and responsive. Easy access to information on program performance improves the State's potential for accessing foundation and grant funding for innovative programming or evaluations.

Staff Morale Rating: 10

Empowering staff with the tools to do their job better will result in improved performance and a more positive perception of staff towards their job and the services they provide. This will reduce turnover, increase overall productivity, and improve outcomes.

ROI Financial Worksheet

Annual Pre-Project Cost - How You Perform The Function(s) Now	
FTE Cost (salary plus benefits):	
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	
A. Total Annual Pre-Project Cost:	N/A – New program
Annual Post-Project Cost – How You Propose to Perform the Function(s)	
FTE Cost:	
Support Cost (i.e. office supplies, telephone, pagers, travel, etc.):	
Other Cost (expense items other than FTEs & support costs, i.e. indirect costs if applicable, etc.):	
B. Total Annual Post-Project Cost:	N/A – New program
State Government Benefit (= A-B):	N/A – New program
Annual Benefit Summary	
State Government Benefit:	
Citizen Benefit (including quantifiable “hidden taxes”):	
Opportunity Value and Risk/Loss Avoidance Benefit:	\$6,326,661
C. Total Annual Project Benefit:	\$6,326,661
D. Total Annual Project Cost:	\$516,325
Benefit / Cost Ratio (C / D):	12.25
ROI (C – D / Project Funds Requested):	563.68%
X Benefits Not Cost Related or Quantifiable (including non-quantifiable “hidden taxes”)	